



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/506,529	01/31/2005	Kenji Takai	1204.44255X00	1181

20457 7590 10/23/2006

ANTONELLI, TERRY, STOUT & KRAUS, LLP
1300 NORTH SEVENTEENTH STREET
SUITE 1800
ARLINGTON, VA 22209-3873

EXAMINER

LAM, CATHY FONG FONG

ART UNIT	PAPER NUMBER
----------	--------------

1775

DATE MAILED: 10/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/506,529

Applicant(s)

TAKAI ET AL.

Examiner

Cathy Lam

Art Unit

1775

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-50 is/are pending in the application.
4a) Of the above claim(s) 35-40 and 45-50 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-34 and 41-44 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 September 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. ____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>09-03-2004</u> . | 6) <input type="checkbox"/> Other: ____. |

Election/Restrictions

Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) s 1-34 & 41-44, drawn to a metal clad laminate and a printed wiring board.

Group II, claim(s) 34-50 & 45-50, drawn to a method of making a metal clad laminate.

1. The inventions listed as Groups I & II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the method of making the metal clad laminate involves with an etchant which involves a specific chemical compound and concentration.

2. During a telephone conversation with Atty: William Solomon on August 24, 2006 a provisional election was made with traverse to prosecute the invention of I, claims 1-34 & 41-44. Affirmation of this election must be made by applicant in replying to this Office action. Claims 35-40 & 45-50 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Information Disclosure Statement

3. The information disclosure statement filed April 26, 2006 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

Applicant is required to submit a copy of Foreign Patent Documents EP 0957664 and WO 97/47165 as listed on the PTOL 1449 filed on April 26, 2006.

Furthermore, applicant submitted Foreign Patent Documents WO 02/07485A & WO 9625838 but these references were not listed on PTOL 1449.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 5-6, 8-14, 16, 20-21, 23-29 & 31 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Ameen et al (US 6132589).

Ameen teaches a copper foil that is useful for the production of printed circuit boards. The copper foil has a smooth or shiny side and a rough or matte side.

The copper foil disclosed by Ameen is an untreated foil, that is the surfaces of the copper foil has not undergone roughening treatment (col 3 L 18-23). Ameen's copper foil has a very low profile surface (col 2 L 60-63).

A zinc metal layer is first coated over the copper foil, followed by a chromate layer, both layers function as anti-corrosive layer (col 2 L 50-54). A layer of silane coupling agent is applied to the chromate layer, wherein the silane coupling agent may contain amino group (col 5 L 19-26).

The coated copper foil is brought into contact with a dielectric substrate which is a partially cured prepreg. The resin used for the prepreg can be an epoxy resin or a

Art Unit: 1775

cyanate ester (col 6 L 47-59). The epoxy resin is typically a liquid unless curing step is performed (col 8 L 57-62). The epoxy resin may include a conventional amine curing agent or a curing agent other than amine (col 6 L 50-54 & 60-63).

6. Claims 1, 5-6, 8-13, 16, 20-21, 23-28 and 31 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Fujiwara et al (EP 1006763 A2).

Fujiwara teaches a copper foil laminate for used in a printed wiring board. The copper foil is a rolled copper foil (i.e. no roughening treatment performed on its surfaces).

A bond enhancing treatment is performed onto the copper foil surfaces (page 4 L 16-21). The sequence of forming the bond enhancing treatment includes first forming an alloy layer (2) over the copper foil surface, then coating a chromate layer (3) over the alloy layer (2) followed by forming a silane coupling agent layer (4) (page 4 L 16-19 & page 5 L 29-30).

The alloy layer (2) is comprised of copper, zinc and nickel (page 4 ¶ 23). The examiner is taking the position that the alloy layer (2) and the chromate layer (3) are anti-corrosive coating layers. The silane coupling agent (4) containing amino group (page 5 L 32-33).

The copper foil that is coated with the anti-corrosive coating layers and the silane coupling agent, is then coated with an epoxy resin varnish (i.e. a liquid epoxy resin) (page 2 L 37-38 & page 11 L 29-30).

The bonding strength after heat pressing & drying of the copper foil laminate is > 0.6 kgf/cm (i.e. equivalent to 0.6 kN/m) (page 11 Table 1, Ex. 1 & 2).

Claim Rejections - 35 USC § 103

7. Claims 1-34 and 41-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ameen et al (US 6132589) or Fujiwara et al (EP 1006763 A2).

Both amen and Fujiwara discloses the present invention except for the surface roughness and the thickness of the copper foil. The prior art are also silent about the copper foil which formed into a circuit pattern having a line width of 1 mm.

In view of the prior art teachings, it would have been obvious to choose a surface roughness and thickness for the copper foil because these variables can be obtained by rolling process. Ameen discloses that the copper foil having a “very low surface profile” may have a surface roughness of less than 4 μm (col 2 L 62-63).

Furthermore, it would also be obvious to fabricate a 1mm width circuit line because it is just a matter of design choice.

Regarding to the interfacial roughness between the insulating resin composition layer and the metal foil, the examiner is taking the position that it would be inherent that the interfacial roughness would be the same as the metal foil surface roughness, because the resin composition layer is a liquid when applied to the metal foil surface, and the liquid would conform to any shape of the metal foil surface.

Double Patenting

8. Claims 1-34 & 41-44 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-17 of copending Application No. 11/044,533. Although the conflicting claims are not identical,

Art Unit: 1775

they are not patentably distinct from each other because they are structurally and materially the same.

9. Claims 1-34 & 41-44 provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 18-33 of copending Application No. 10/986,913. Although the conflicting claims are not identical, they are not patentably distinct from each other because they are structurally and materially the same.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

10. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cathy Lam whose telephone number is (571) 272-1538.

The examiner can normally be reached on 9am-6pm.

Art Unit: 1775

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on (571) 272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Cathy Lam
Primary Examiner
Art Unit 1775

cfl
September 08, 2006